

**REMARKS**

Applicant respectfully requests reconsideration of the application.

Claims 1, 4, 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,263,086 to Wang ("Wang") in view of U.S. Patent No. 6,275,599 to Adler et al. ("Adler").

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, Adler and U.S. Patent No. 5,930,369 to Cox ("Cox").

Claims 3, 7, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, Adler, and US Patent Publication No. 2002/0169962 ("Brundage"). Note that there appears to be a typographical error in the Office action, and the reference to "2002/016992" has been interpreted as 2002/0169962.

Claims 9, 12, 14, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, Adler, and US Patent No. 6,591,365 to Cookson ("Cookson").

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, Adler, Cookson, and Brundage.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang, Adler, Cookson and U.S. Patent No. 4,552,617 to Crane ("Crane").

**Claims 1, 4, 5, 6 and 8 are patentable over Adler and Wang****Claim 1**

Neither Wang nor Adler teach: "converting the image to a halftone image using an inherently unstable halftone screen structure that is likely to cause ink flow errors when reproduced, wherein errors introduced by reproducing the unstable halftone screen structure incorrectly are automatically detectable by reading the auxiliary signal" in combination with the elements of claim 1. The Office acknowledges that Wang does not teach this aspect of claim 1. The Office contends that Adler teaches a "fragile watermark for which any tampering of the image is detected through errors produced in the watermark." However, Adler is silent regarding the use of unstable halftone screen structures as claimed. In fact, there is no evidence in Adler that Adler's method is applicable to printed images, much less halftone images made using an unstable halftone screen structure as claimed. Therefore, there is no evidence that Adler's method can be used to automatically detect errors introduced by reproducing the unstable screen

structures. In sum, the combined teachings of Wang and Adler fail to disclose or suggest all of the elements of claim 1. Further, there is no motivation to combine the halftone technique in Wang with Adler, which provides no teaching regarding printed images.

Claims 4 and 5 are patentable for the same reasons as claim 1.

#### Claim 6

Regarding claim 6, Adler provides no teaching regarding detecting reproduction errors in a printed object, and specifically, fails to teach or suggest: “using a measurement of strength of the digital watermark to detect reproduction errors due to inaccurate reproduction of unstable halftone screen structures in the printed object.” Wang also fails to teach or suggest this aspect of claim 6. Therefore, the combined teachings of Wang and Adler fail to suggest all of the elements of claim 6. In order for Adler’s method to be applicable, Adler’s watermark would have to be readable from a printed object. However, there is no teaching that Adler’s watermark would even survive the transformation from a digital image to a printed object, much less be detectable from a digital image scanned from the printed object. Adler fails to teach any method for measuring the strength of a watermark in a digital image scanned from a printed object because Adler’s technique is directed only to digital images.

Claim 8 is patentable over Wang and Adler for the same reasons as claim 6.

#### Claim 2 is patentable over the combination of Wang, Adler and Cox

Cox fails to teach the elements of claim 1 that are missing from Wang and Adler. Therefore, the combination of Wang, Adler and Cox fails to teach all of the elements of claim 2.

#### Claims 3, 7, 10, and 11 are patentable over the combination of Wang, Adler and Brundage

Brundage fails to teach the elements of claim 1 that are missing from Wang and Adler. Therefore, the combination of Wang, Adler and Brundage fails to teach all of the elements of claim 3. Similarly, Brundage fails to teach the elements of claim 6 that are missing from Wang

and Adler. Therefore, the combination of Wang, Adler and Brundage fails to teach all of the elements of claims 7, 10 and 11.

Claims 9, 12, 14, 16, and 17 are patentable over the combination of Wang, Adler and Cookson

**Claim 9**

Cookson fails to teach the elements of claim 6 that are missing from Wang and Adler. Therefore, the combination of Wang, Adler and Cookson fails to teach all of the elements of claims 9.

**Claim 12**

The combined teachings of Wang, Adler and Cookson fail to suggest detecting a first digital watermark from a substrate of the printed object, in combination with the other elements of claim 12. Cookson mentions that his method is applicable to music and video. However, Cookson fails to provide even the slightest suggestion of using his method for printed objects, and specifically, using a first watermark from a substrate of the printed object and a second watermark from an image scanned of the printed object to determine authenticity of the printed object as claimed. Wang and Adler fail to provide these teachings as well. Even when combined (though there is no motivation to combine), Wang, Adler and Cookson fail to teach all of the elements of claim 12.

Claims 14 and 16 are patentable for the same reasons as claim 12.

**Claim 17**

The Office has failed to establish how the teachings of Wang, Adler and Cookson relate to claim 17. The combined teachings of these references fail to teach or suggest: “determining authenticity of the printed object by comparing the location of the digital watermark to the visible fiducial” as claimed.

Claim 15 is patentable over the combination of Wang, Adler, Cookson and Brundage

Brundage fails to teach the elements of claim 12 that are missing from Wang, Adler and Cookson. Therefore, the combination of Wang, Adler, Cookson and Brundage fails to teach all of the elements of claim 15.

Claim 13 is patentable over the combination of Wang, Adler, Cookson and Crane

Crane fails to teach the elements of claim 12 that are missing from Wang, Adler and Cookson. Therefore, the combination of Wang, Adler, Cookson and Crane fails to teach all of the elements of claim 13.

In view of the above, the claims are patentable over the cited art.

Respectfully submitted,

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